ART. XII. *Mortality of the Metropolis.—A Statistical View of the Number of Persons reported to have Died of each of more than One Hundred kinds of Disease and Casualties within the Bills of Mortality in each of the Two Hundred and Four years,* 1629–1831, *&c.* &c. *&c.* By JOHN MARSHALL, Esq. 1 Vol. 4to. London, 1832.

The Population Returns of 1831, *with a Statement of Progress in the Inquiry regarding the Occupation of Families and Persons and the Duration of Life; an Historical and Descriptive Account of London, Westminster, and other parts of the Metropolis; a Comparative Account of the Population of Great Britain, in* 1801, 1811, 1821, *and* 1831, *&c. &c. &c.* London, 1832.

Natural and Political Observations mentioned in a following Index, and made upon the Bills of Mortality. By JOHN GRAUNT, Citizen of London. With reference to the Government, Religion, Trade, Growth, Ayre, Diseases, and the several changes of the said city. London, 1662.

MEDICAL statistics, or as it is occasionally denominated *political arithmetic,* constitutes at the present time, an object of deep interest to the physiologist and philanthropist, as well as to the statesman. In England and in some of the countries of the European continent, many valuable publications affording information of a highly interesting and useful character, and presenting results of a remarkable and often of an unexpected nature, have been recently presented to the public; and to those who are conversant with the scientific and medical literature of this country, it need scarcely be stated that the subject has begun successfully to engage the attention of American writers. The progress made in this department of knowledge, and the zeal and success with which it is studied, should be to all a source of great satisfaction, for viewed in every light the science of medical statistics must be considered as of considerable importance, and as fully entitled to the attention it receives. As Dr. HAWKINS well remarks, it is the key to several sciences; opening in a manner the most convincing, simple and summary, their gradual progress, their actual condition, their relations to each other, the success which they have attained, or the deficiencies which remain to be supplied. Its application to the objects of government, Dr. H. adds, has created political economy; and there is reason to believe, that a careful cultivation of it in reference to the natural history of man in health and disease, would materially assist the completion of a philosophy of medicine, by pointing out to the physicians of every part of the world the comparative merits of various modes of practice, the history of disease in different ages and countries, the increase and decrease of particular maladies, the tendency of certain situations, professions, and modes of life to protect or to expose; and by indicating, as the basis of prognosis, those extended tabular views of the duration and termination of diseases which are furnished at successive periods, by hospitals and civic registers.

Medical statistics is comparatively a new science, and constitutes, we believe, one of the many branches of useful knowledge, fôr the first idea of which we are indebted to England. This at least has been inferred from the circumstance, that although a few useful facts relative to mortality, births, &c. may be found scattered in the writings of the older medical and other authors of the continent, no individual appears to have taken up and investigated those subjects in a regular and systematic matter previous to the middle of the seventeenth century, when Capt. John Graunt, *citizen of London*, published the work whose title will be found among those prefixed to this article. "Capt. John Graunt, of London, has the honour, says Dr. Hawkins, of being the first writer who ever directed the attention of the world to the comparative births and deaths of different cities, years, seasons, sexes; to the comparative mortality of disease; to the proportion of births and deaths, and to the relation of the town to the country in these respects." "He displays a singular genius for observations, in a field where no footstep can be traced before his own. He was really the creator of the new science of *statistics.*"

In this field of investigation, Graunt has been followed by SUSSMILCH, ODIER, HEBERDEN, BLANE, RICHMAN, FINLAYSON, VILLERME, QUETELET, CASPER, ORSINI, GORDINI, BALBI, DE SAGRAS, SEYBERT, EMERSON, STORER, and other writers in Europe and America who have furnished information of great value on different points connected with the subject in question.

But among the numerous publications which have appeared on the subject, there are few entitled to more respect, as well on account of the mass of valuable information it conveys, of the manner in which this is arranged, as of the localities to which it has reference, than the volume which stands at the head of our list. The author informs us, that his attention had long been directed to the extent and mortality of London, and that having been favoured by a friend connected with one of the insurance offices, with a complete set of the bills of mortality, published annually for more than two hundred years, he was excited by curiosity in the first instance, rather than by any specific design, to ascertain what their investigation might lead to and develope.

Having gone through the whole period, he threw the details into a form, to enable him to see clearly what conclusion could be drawn from them. The manuscript was afterwards shown to some eminent medical practitioners who recommended its publication.

Presuming that some of our readers take an interest in investigations of this kind, and convinced ourselves of the high importance of the subject, we have drawn up an abstract of that part of Mr. Marshall's work which relates to the movement of the population of London and England, and to the causes of the mortality in the former. But with a view to render the article more complete and interesting, we have occasionally borrowed from Capt. Graunt's volume, and from the population returns of 1831—the preparation of which is assigned to Mr. Rickman the assistant-clerk of the house of commons; and have likewise compared, on several points, the results obtained in England, with those furnished by similar researches in France and other places.

From all we can learn on the subject, it appears that the first of the continued weekly bills of mortality extant at the Parish Clerk's Hall, began on the 29th of December, 1603, "being" as Mr. Graunt remarks, "the first year of King James his reign; since when a weekly accompt hath been kept there of burials and christenings." It is true, that parish registers of marriages, christenings and burials originated in England in 1592, and were published in 1594, in consequence of the plague which existed the preceding year. But they were discontinued after the 18th December, 1597,—the plague having then ceased; for it seems probable, as Mr. G. surmises, that "the rise of keeping these accompts was taken from the plague."

In 1603, when the publication of the uninterrupted series of bills commenced, the reports were received from only thirteen out parishes, in addition to ninety-six within the walls of the city of London—that of St. James's Duke's Place not being then included. From that period to 1629 other parishes were successively added, and in the latter year twenty-six parishes in addition to the ninety-seven within the walls, (St. James's Duke's Place being now included,) made weekly returns. Since then the number of out parishes included within the bills of mortality, have been increased to fifty, embracing London without the walls, the borough of Southwark and the city and liberties of Westminster.

In the first bills, from 1603 to 1625, the aggregate weekly number of burials and christenings in the various parishes was reported. But neither in these reports nor in the annual bill was any thing said of the diseases occasioning the mortality, except of the plague,—the number of individuals who had fallen victims to this disease being separately stated. In the last mentioned year, 1625, the number of burials in each separate parish was for the first time mentioned; but it was only in 1629, that the reports of diseases and casualties, together with the distinction of the sex of those who had died, were first presented to the public.

> "Such," as Mr. Marshall remarks, "was the origin and progress of the account of the burials and diseases of that part of the metropolis within the bills of mortality from 1592 to 1629, since which date a copy of the returns has been sent weekly to the secretary of the home department of state, and the right honourable the lord mayor, and an annual account has been, and still continues to be published, and generally circulated by the several parish clerks, amongst their fellow parishioners, under the imposing title of 'A general bill of all the christenings and burials within the city of London, and bills of mortality from December ——, to December ——, according to the reports made to the King's most excellent Majesty, and to the Right Honorable the Lord Mayor, by the Worshipful Company of Parish Clerks.'"

Before proceeding further, it may be proper to offer a few words in relation to the officers to whom was, and is still entrusted the preparation of the bills of mortality, and to the source whence they derive their information respecting the nature of the diseases, and casualties occasioning the deaths reported. These officers are denominated Parish Clerks, and constitute a company which was incorporated as far back as 1233, under the title of the *Fraternity of St. Nicholas.* In 1611 they were reïncorporated under the title of the *Worshipful Company of Parish Clerks*, and in 1625 their bills of mortality are stated to have acquired a general reputation. As regards the manner in which the knowledge on which the bills are founded, is obtained by those officers, or in other words the authority upon which the report of diseases is founded, Mr. Marshall truly remarks, that considering the country and city concerned in these reports, the exalted sanction under which they are made, and the public officers to whom they are presented, it would be natural to suppose that the office of reporting would be assigned to some of the most acute, discerning, enlightened and industrious members of the medical profession.

"But what will the distant inquirer say," he adds, "when I inform him, as it is my duty to do, that the reports rest upon the authority of a parcel of elderly females, designated *old women*, by those who indulge in vulgar prejudices against the returns."

These women are two in number in each parish, and are denominated *searchers*. They are appointed by the parish clerks, under the sanction of the parochial authorities.

"When any one dies," says Capt. Graunt, "then either by tolling or ringing of a bell, or by bespeaking of a grave of the *sexton*, the same is known to the *searchers*, corresponding with the said *sexton*. The searchers hereupon repair to the place where the dead corpse lies, and by the view of the same, and by other inquiries, they examine by what disease or casualty the corpse died. Hereupon they make their report to the *parish clerk*."

To our great surprise, Mr. Marshall entertains a favourable opinion of this mode of reporting, and of the class of individuals from which the searchers are selected. After stating the manner in which these reports are drawn, he asks what more could be done by the most skilful medical practitioner, except by the one who attended the person previous to demise. He cannot discover that there exist any rational motive for misrepresentation, except in a few cases, perhaps, of a desire on the part of the friends of the deceased to conceal the fact, when the death may have been occasioned or accelerated by indulgence in some vicious practice. But such cases, he thinks, supposing them to occur at all, will of late years, at all events, have been too few to affect the general interest of the bills.

"The *searchers* so called, he affirms, are personages, not perhaps possessing the first order of mental acquirement and discrimination; but possessing plain good sense, matronly deportment, and much practical experience in diseases, affording as fair a guarantee for exactitude in their reports as is likely to be obtained in any other manner, without consulting the medical practitioner by whom the disease was attended previous to the demise: a medical practitioner could probably report more *technically*, but not more intelligibly."

The expression of this opinion is the more astonishing, as, according to Mr. Marshall's statement, his own countrymen entertain a different one, and there prevails in the metropolis a general censure and disregard respecting the reports founded on the character of those from whom they are obtained. We cannot indeed conceive how an author of Mr. Marshall's intelligence and information, can for a moment uphold such a plan of reporting. It is radically defective, whether we have regard to the manner in which the information required is obtained, or to the presumable character and acquirements of the individuals charged with collecting it. It would be a matter of considerable difficulty for any class of persons, however well informed, to decide, from the inspection of a corpse, or from such other sources of information as the searchers can have access to, respecting the seat and character of the disease which has caused the demise of an individual whose remains they are called upon to inspect. Physicians themselves would often be sorely puzzled to arrive, from such data alone, at a satisfactory conclusion, and surely the difficulty must be infinitely greater to individuals of the female sex, who have not enjoyed the benefit of even the elementary portion of a professional education. They may possess, for all we know to the contrary, the good and matronly deportment Mr. M. concedes to them; but it will be not the less true, that as they pursue no regular studies, and are, from the nature of their duties, in constant attendance on the *dead*, not on the *sick*, they cannot be supposed to acquire much experience in disease. Owing to this circumstance, and to the sources of information within their reach affording but slender data from which to arrive at a decision, it is not unreasonable to presume that errors of a very gross character inevitably creep into their reports. But this objection to the searchers is principally founded upon the difficulties incident to the mode of reporting adopted. Others of a more serious kind may be found. Mr. Graunt, while maintaining, though for reasons very different from those assigned by Mr. Marshall, that the authority of the searchers is sufficiently good, and that it is of no importance whether the disease reported, be exactly the same as physicians "define it in their books," provided the principal symptoms are given; Mr. Graunt, we say, recognised in the searchers of his times a great fund of ignorance, and even accused them of being open to bribery by those who wished to conceal the disease of which their friends had died. Now, we have reason for considering them as ignorant, and no more honest now than they were one hundred and fifty years ago, for Dr. Hawkins, in speaking of those of the present time, says they are dismissed with a gratuity, and are satisfied with the first answer given to them by the relatives of the deceased. Influenced by these circumstances, and entertaining different views from Mr. Graunt respecting the necessity of accuracy, we cannot help believing that much advantage would be obtained in England from a polite dismissal of all those ladies, and the adoption of a system different from that at present in force; such for instance as that adopted among us, or the one in operation in France, as they both appear to be far preferable in every respect to the one in question.

We cannot dismiss the subject of the searchers, without noticing in a brief manner an opinion expressed by Mr. Marshall, who, after speaking of those females, remarks that—

> "It may serve in some degree to assuage English vanity to know that over the greater part of continental Europe, the duties of attendance during *parturition* are wholly performed by females, who enjoy a respect and distinction in society beyond that of the male practitioner in physic and surgery. Why then should the reports of diseases in London be impugned for being made by females?"

Now, in this extract we discover two points on which that gentleman appears to us to have erred materially. The first relates to the supposed higher standing, on the continent of Europe, of midwives than of the regular members of the medical profession, and the second to the equality which Mr. M. seems disposed to believe exists, on the score of character and acquirements, between those midwives and the old matrons of whom we have been speaking. We confess that this is the first time we have heard that midwives enjoyed in any part of the world the least degree of superiority as regards respect and distinction in soceity over medical or surgical practitioners; and we doubt whether any one, conversant with the state of the profession in Europe,—who knows from what class of society *accoucheuses* are derived, as well as the inferiority of their education compared with that of physicians whose professional studies must necessarily embrace a much wider range of subjects, and be preceded by classical instruction totally unlooked for in the others, will ever feel disposed to join in opinion with Mr. Marshall. But while maintaining this, we must be allowed to affirm, that between the continental midwives and the metropolitan searchers, no parallel can be drawn. The former are regularly educated on the various points connected with the branch of the art they are destined to practise. They go through several courses of lectures delivered by able professors; attend during a sufficient time to clinical instruction, and are not licensed to practise before giving evidence, in several examinations, of their possessing the necessary qualifications and instruction; while the searchers receive, as has been already stated, no theoretical or practical instruction, and are therefore unable to obtain their experience otherwise than by attendance on the *dead*.

Having disposed of this part of our subject, we proceed to lay before our readers some facts relative to the mortality of England and its immense metropolis, to the principal diseases by which this mortality has been, and continues to be caused, and to the variations manifested at different periods in respect to the prevalence of those maladies. But in order to convey a more correct and satisfactory view of these several subjects, it will be necessary to present a statement of the population of the metropolis and of the whole country at various periods. On this head, the information contained in Mr. Graunt's work cannot, we fear, be safely relied upon; inasmuch, as his calculations do not appear to be founded upon official data. He informs us, that in his time, some of the good people of the city—of great experience too, had a very exalted opinion of the immense population of the metropolis, talking seldom "under millions of people to be in London," all of which, Mr. Graunt confesses, he was apt to believe "until, on a certain day, one of reputation was upon occasion asserting, that there was in the year 1661, two millions of people more than *anno* 1625, before the great plague, which would have made the whole number then in London to be six or seven millions." As this number appeared to the shrewed author to be extraordinarily large, he was induced to undertake a computation of the inhabitants. By comparing the number of deaths reported annually; the number of births, abortions, &c. he concluded that the eminent individual who had advanced the above opinion, had gone very far beyond the mark, and that in 1661, the population of London—of the ninety-seven parishes within the walls, and eighteen out parishes, did not amount to more than 384,000. But this estimate, low as it may seem in comparison to six millions, appears nevertheless to be too high, for Mr. Marshall states, that according to an enumeration, which seems to have been carefully made in 1631, the total population of the whole city of London, both within and without the walls, including four parishes in Surrey, (which, since 1750, have been included among out parishes,) making in all, independently of the parishes of the city proper, the same number of out parishes as mentioned by Mr. Graunt, amounted to 130,178;—a number, much too small to allow us to regard the estimate of Mr. G. as accurate, since the interval between the two periods was only thirty years, and the population could not, in so short a time, have trippled in extent. In another estimate in which are included the ninety-seven parishes within the walls, and thirty-three out parishes, Mr. Graunt supposes the number of inhabitants to have amounted to 460,000 in all. Here he appears to us to have erred on the other side, for in 1700, only thirty-nine years after the period mentioned by him, the out parishes alone, exclusive of those composing the city of London *within* and *without* the walls, and of Westminster, contained 326,000 souls, and the population of the whole of that part of the metropolis within the bills of mortality amounted to nearly 200,000 more than the number stated by him.

Be this, however, as it may, Mr. Marshall has furnished at page 12 of his admirable work, a statement showing the progressive increase of the population in each of the districts composing the metropolis at five different epochs from 1700 to 1821 inclusive. From this statement, it is found, that the population of that part of the metropolis situated within the bills of mortality, viz. 1st. The city of London within the walls, including ninety-seven parishes. 2d. The city of London without the walls, including seventeen. 3d. The city and liberties of Westminster, including ten. 4th. The out parishes within the bills, including twenty-nine parishes, amounted in 1700 to 665,200; in 1750, to 653,900; in 1801 to 777,000; in 1811 to 888,000; in 1821 to 1,050,500 inhabitants.

If to these numbers we add that of the inhabitants of the out parishes not within the bills, which amounted in the first period to 9,150; in the second to 22,350; in the third to 123,000; in the fourth to 162,000, and in the last to 224,300; together with, (in the three last periods,) the remainder of Middlesex within the range of the metropolitan police, and the other parishes in Surrey, some in Kent, and the Becontree Hundred Essex, all of which are, in like manner, within the same range, we shall find that the total population of the metropolis of the British Empire was as follows:—in 1700, 674,350; in 1750, 676,250; in 1801, 1,097,896; in 1811, 1,304,359; in 1821, 1,574,689.

In these statements are included the seamen, strangers, &c. daily arriving in London, and who in 1821 amounted to 47,210. It will be found from the documents furnished by Mr. Marshall and by Mr. Rickman in the *Population Returns*, that the number of inhabitants within the bills of mortality rather decreased than increased from 1700 to 1750; and that this effect was particularly striking from 1700 to 1811 in the part of London known under the appellation of the *City*. The number in 1700 was 139,300, while in 1750 it did not exceed 87,000, and in 1811 it was reduced to 57,700, beyond which it has hardly risen since. The same documents will show, that the increase has principally taken place in the out parishes, both within and without the bills; for in the former the population, which in 1700 did not exceed 326,900, amounted in 1811 to 730,700, while the number in the parishes without the bills increased in one hundred and twenty years from 9,150 to 224,300. In explanation of the first of these facts, it is mentioned that at the former period, four parishes in Surrey—St. George, St. Olaves, St. Saviours, and St. Thomas, which, in 1750, and subsequently thereto, were included under the head of *out parishes within the bills of mortality*, were in all probability included in the city within the walls; that in 1811 and 1821, the precincts of White Friars, St. Botolph, &c. containing together 11,741 inhabitants, were placed without the walls, but were, as late as 1801 included in the city within the walls; that the Bank of England, the Mansion House, Blackfriars Bridge, the East India House, and other public buildings, which were all erected since 1700, occasioned considerable demolition; that there exists a progressive tendency of inclination on the part of the inhabitants of the city for country residence; and finally, that a large number of houses contiguous to public buildings have been transformed into counting-houses. As regards the second fact—the much greater increase in the population of the out parishes, it will be sufficient to remark, that many among these are located in those parts of the metropolis within the range of influence of the shipping business, which has more than doubled itself since 1810; while the others are the seat of a manufacturing industry, whose products are spread in every part of the world, and which necessarily attracts and tends to concentrate together a larger concourse of individuals than the city both within and without the walls, the commerce of which is limited to one of simple consumption.*

With respect to the population of London at a later period, Mr. Marshall furnishes us with no positive information,—his work having probably been prepared for publication too early in 1832, to enable him to make use of the official statements contained in the population returns laid before parliament the year before, and which were published about the same time as his own volume. He only presents us therefore with an estimate of the population of the metropolis for 1831, which somewhat exceeds that reported in the official documents, including, as it does, the probable number of seamen and strangers,—a class of individuals that appear to be excluded from the other enumeration. According to the latter, the whole fixed population of the metropolis in 1831, including that of the adjacent parishes not within the bills, amounted to 1,474,069, and exclusive of these to 1,180,502. The distribution of this amount in the different districts, was as follows:—

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* At page 25 of the population returns of 1831, we find a statement of the population of London in 1801, 1811, 1821, and 1831. This statement in regard to the three first periods, differs somewhat from that given by Mr. Marshall, both as regards the aggregate population of the whole city, and the number in each district composing the latter—the numbers mentioned by Mr. M. being in each case larger than those mentioned in the "*Returns.*" But Mr. Marshall evidently includes in his enumerations the seamen, strangers, &c. while this is not the case in the official documents.

London within the walls	57,695
London without the walls	67,878
Southwark, borough	91,501
Westminster city	202,080
Out parishes within the bills of mortality	761,348
Adjacent parishes not within the bills	293,565
Total	1,474,069

Mr. Rickman, the author of the returns from which the foregoing statement is borrowed, remarks, that objections may undoubtedly be made to the propriety of the limits of the metropolis herein assumed, and that it is, therefore, convenient to add, that the total population of all the parishes, that of Woolwick excepted, whose churches are situated within eight English miles rectilinear from St. Paul's Cathedral, amounted to 1,031,500 in 1801; to 1,220,200 in 1811; to 1,481,500 in 1821, and in 1831 to 1,776,556; a twenty-fifth part being added in each of these instances as a moderate allowance for seamen, soldiers, and transitory population.

As regards the population of the whole of England and Wales, we find that it amounted in 1781 to 7,953,000; in 1791 to 8,675,300; in 1801 to 8,872,982; in 1811 to 10,163,676; in 1821 to 11,978,875; and in 1831 to 13,894,574. Scotland in each of those ten year periods had a population, in 1781 of 1,470,000; in 1791 of 1,500,000; in 1801 of 1,599,068; in 1811 of 1,805,688; in 1821 of 2,093,456; in 1831 of 2,365,807. The population of the whole of Great Britain, including the army and navy, &c. which are omitted in the above statements, was in 1781, 9,673,000; in 1791, 10,165,000; in 1801, 10,942,646; in 1811, 12,609,864; in 1821, 14,391,631; and in 1831, 16,537,398.

Before passing to the subject of the relative proportion of the sexes, which is next to occupy our attention, it is necessary to remark, that the information possessed respecting births, as well as marriages and deaths, is only obtained from the parish registers, the origin of which dates from the establishment of the Church of England, and which are left entirely in the hands of the clergy of this church. Owing to this circumstance the dissenters keep no registers, or at least furnish no reports; and as others, particularly the poor, conceal as far as they can the births, marriages, and deaths which occur in their families, in order to avoid paying the tax levied on all records, it results that the reports issued by the parish clerks, or otherwise obtained by government, are not as complete and accurate as might be desired. In this respect France has greatly the advantage over England, because there the duty of registering is exclusively confided to the civil authorities, to whom the various denominations of individuals are strictly enjoined to report all cases of births, marriages, and deaths occurring among them; and whose documents must in consequence be infinitely more complete than those that might be obtained from the registers of the catholic or other clergies. Hence in speaking of the births and deaths in England, some allowance must be made for the number of those which are not registered in the parishes, and which consequently are not reported to government. This imperfection, however, will readily be understood to affect the question of the full number of births, &c. and not of the relative proportion of the sexes, because in the amount unreported the latter must bear the same proportion to each other as would be found to be the case in an equal number reported. The following statements are, therefore, only founded on the returns obtained from the parish registers, and not on the real number of births, marriages, and deaths occurring in England. From these returns it will be found that in Great Britain male births exceed those of the female sex. Thus, in the ten years included between 1801 and 1811, the registered births in all England amounted to 2,730,965, and in those between 1811 and 1821, to 3,100,261. In the first period the excess of boys over girls was 51,984. In the second, 66,035. In each of these ten yearly periods the excess among the boys was constant in each separate county. In Wales during the first period there was a majority of 14,939 boys, and in the second period a majority of 5,992. Mr. Marshall presents a very full and complete table, showing the total number of marriages, baptisms, and burials in all England and Wales at each of nine ten yearly periods, from 1700 to 1780, and in each of the forty years, 1781 to 1820. From this table it will be perceived, that the boys at birth have invariably exceeded the females in each of the specified years. As may probably be known to our readers, this excess of male over female births, is not peculiar to England; for it is found to obtain all over the world. But though this is shown to be the case, the excess is not exactly the same every where. By a careful calculation of the births in England in 1801–11–21, it has been found that the proportion of boys to girls was as $104\frac{75}{100}$ to 100. In France, from 1770 to 1774, inclusive, the proportion was $106\frac{76}{100}$ boys to 100 females, and from 1817 to 1827, inclusive, as $106\frac{55}{100}$ to 100. From 1817 to 1829, they were as 16 to 15. In Sweden the proportion of male to female births, was, from 1775 to 1794 as $103\frac{52}{100}$ to 100; and from 1816 to 1825, as $104\frac{62}{100}$ to 100. In Wurtemberg the boys have on several occasions exceeded the girls by 7 per cent.; and in Russia, the excess from 1812 to 1829, amounted to $8\frac{91}{100}$ per cent. From these facts, and others that could be easily mentioned, it follows, that with the exception of Sweden, England presents the smallest excess of male over female births.

As we find in the works before us no account of the proportion of the sexes among illegitimate children, it is impossible to ascertain whether in England the excess of males over females is more limited in that class than among the legitimates, as is found to be the case in every part of the continent of Europe.

As regards London in particular, it will be found, on examining Mr. Marshall's tables, that in the various periods we have mentioned, from 1700 to 1820, the excess of births among males has also been strong, though not as constantly so in each separate year, as we have seen it to be the case in the country generally. In the forty-nine years specified separately, the female births presented an excess sixteen times; and in the twenty years, from 1801 to 1821, the excess of male over female births, in the four divisions of the metropolis within the bills and in the out parishes, not within the latter, amounted to little more than 2,600. During a period of 136 years, 1656—1776, and 1786—1810, the male births in London exceeded the female by $6\frac{18}{100}$ per cent.

In this respect London had then the advantage over Paris. Since that period, however, it appears to have lost it, for during the twelve years, 1819–29, the male births at Paris exceeded the female by $3\frac{59}{100}$ per cent.; and in 1828 the former were to the latter as 24 to 23; while the proportion in London in the twenty years we have mentioned, was as about 99 to 98. In Philadelphia, the excess of males within the ten years, 1821–1830, was greater than in either of those two cities—varying in each of those years from 3.6 to 10.5 per cent. and giving an average of more than 7 per cent.

The next point to be ascertained is the proportion of the sexes at all periods of life. According to Mr. Graunt, the number of males, in his time, was one-thirteenth part larger than that of females in London, and one-fourteenth part in the country. This information is interesting, as it affords an example of the change that has taken place on the subject in question since the middle of the seventeenth century; it being a fact placed beyond the possibility of doubt, that for many years past the number of females in London, and England generally, has exceeded considerably that of males. In the year 1811, the females in

London amounted to 690,683, while the males did not exceed 586,444. In the year 1821, the number of females in all the districts within the bills of mortality, exceeded that of males by 56,240; while in the entire metropolis on a population of 1,574,689, the number of females exceeded that of males by 103,879. With respect to the proportion in 1831, we find in the Population Returns of that year, that in all the districts within the bills of mortality, and in the adjacent parishes not within those bills, on a population of 1,474,069, the females amounted to 789,628, and the males to 684,441. The same returns not only show, that in all the large cities of England, Wales, and Scotland, the females exceed the males in number, but that a like result obtains throughout Great Britain generally. In 1801, the excess of females in England and Wales amounted to 382,754; in 1821, it amounted to 416,098; and in 1831, on a population of 16,537,398, including the army and navy lists, the number of females amounted to 8,375,780, and that of males to 8,161,618. From this statement it will immediately be seen, that though the female population throughout the whole country is larger than the male, the proportion of the sexes is not the same in the country generally as it is in the city of London taken separately; the number of males being proportionally larger, and the majority of females consequently smaller in the former than in the latter. Thus, in 1811, the majority of the females in London was a little more than one-twelfth; while in the entire country it was only a little more than one thirty-fourth part of the whole population. In 1831 the excess in London was one-fourteenth, and that in the whole country only one seventy-seventh part of the population; the proportion being for London, 100 females to 86.7 males; and for the whole country, 100 females to 97.44 males. The fact becomes still more striking if we examine the relative proportion of the sexes in the whole country exclusive of the population of London, for while the majority of females in that city rose, in 1831, to one-fourteenth of the population, the majority in the rest of Great Britain constituted the one hundred and eightieth part of the population. Taking each portion of Great Britain separately, we find that the excess of females in England constitutes a little more than one thirty-eighth part; in Wales a little more than one forty-seventh part; and in Scotland, between a seventeenth and eighteenth part of the population. This excess of females though found to obtain in Belgium, Sweden, does not do so in all other countries. In France the male population at present exceeds the female. Our readers are probably aware that in this country taken in the aggregate the same circumstance occurs—whether we have reference to the black or white portions of the people; and we have the authority of Humboldt for the fact, that it also occurs in Mexico. But while such is the truth in reference to the proportion of the sexes in the whole country, it will be found that in the large cities of France, of this country, of Mexico, and other places, the females exceed the males very nearly in the same ratio as they do in London. But it is not only found, that females exceed males in number in Great Britain, but that they are gaining ground; a circumstance directly opposed to what takes place in France. In the latter country, during a period of thirteen years, 1817–29, the total increase of the population amounted to $\frac{1}{167}$ annually. To this increase the males contributed at the rate of $\frac{1}{297}$, and the females at the rate of $\frac{1}{387}$. In Great Britain, on the contrary, the annual rate of increase during a period of thirty years, 1801–31, as shown by the returns of those periods, was $\frac{1}{88\cdot74}$. To this the males contributed $\frac{1}{182\cdot92}$, and the females, $\frac{1}{172\cdot06}$. In other words, the females in 1831 were to the females in 1801, as 152.5 to 100; and the males in the same periods, as 149.75 to 100. If we make our calculation on the increase of the population, as shown by the difference between the registered births and deaths in England and Wales, we find, that in a period of ten years, 1811–20, the males contributed $\frac{1}{183\cdot404}$, and the females, $\frac{1}{172\cdot164}$; results differing but little from those we have just mentioned. In the same period the annual increase was one sixty-sixth instead of one eighty-ninth; the difference being accounted for by the emigration into England from Ireland and elsewhere, and by the unreported births.

To what we have said in reference to the proportion of the sexes, it may be added, that although the females exceed the males in England, they do not do so at all periods of life; for between birth and the age of thirty, and between forty and fifty, the males exceed the females. Nor is this irregularity in the proportion observed only in England. It is found to take place in France, and in other parts of Europe. In the United States white males exceed the females of the same colour throughout the country; but the contrary is found to be the case among white individuals between fifteen and twenty and seventy and one hundred; as well as among the slaves between the age of twenty-four and thirty-six.

It may be interesting to offer a few remarks on the subject of the relative number of individuals of each sex, at various periods of life, in England. Taking the whole country in the aggregate, it is found, that in every 20,000 inhabitants, there are under the age of five years, 2,982; between five and ten, 3,611; between twenty and thirty, 3,154; between thirty and forty, 2,365; between forty and fifty, 1,873; and between fifty and sixty, 1,318. On comparing this statement with the results obtained in France, we find, that the number of individuals between twenty and thirty are nearly equal in both countries. Among those between thirty and forty, forty and fifty, and fifty and sixty, France furnishes a larger number. The same may indeed be said of individuals between sixty and eighty; but beyond that age the advantage is decidedly in favour of England.

As regards the comparative number of individuals at various periods of life in London and Paris, we find that in 10,000 in each of those cities, London presents a larger number between birth and the age of fifteen, as well as between twenty and forty, and above one hundred; but that the number of individuals between the ages of fifteen and twenty, and forty and one hundred, is more considerable in Paris than in the former.*

By comparing these facts with Mr. Graunt's statement to which we have referred, it will be perceived, that supposing the latter to be correct, things have greatly changed since the middle of the seventeenth century. While contending for the greater number of males than females, not only in London, but in the country at large, Mr. G. remarks, that the proportion of the sexes may be reversed in some places without affecting the result in the country generally. This is found to be the case in Great Britain at the present time; for though an examination of Mr. Marshall's tables, and of the Population Re-

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* The following table will show the probable number of individuals in Great Britain engaged in and dependent on various branches of occupations, in the year 1831:—

Agricultural occupiers	1,500,000
Agricultural labourers	4,800,000
Mining labourers	600,000
Millers, bakers, butchers	900,000
Artificers, builders, &c.	650,000
Manufacturers	2,400,000
Tailors, shoemakers, and hatters	1,080,000
Shopkeepers	2,100,000
Seamen and soldiers	831,000
Clerical, legal and medical	450,000
Disabled paupers	110,000
Proprietors, annuitants	1,116,398
Total	16,537,398

A comparison of the probable proportions in 1821 and 1831, shows that while the labourers tend progressively to increase, the number of agricultural employers remains stationary.

turns before us, show that for a considerable time back, the females have exceeded the males in the separate countries, yet a few exceptions to this rule are met with. In the year 1811, the counties of Stafford and Cambridge contained a few more males than females. The same circumstance was noticed in the year 1831, in seven counties of England, two of Wales, and one of Scotland. A reference to the Population Returns will also show, that in the year 1831, out of six hundred and forty-seven towns, cities or hundreds in England, two hundred and twenty-four presented an excess of males over females; and that out of one hundred places of the same description in Wales, and thirty-seven in Scotland, there were twenty-five in the former, and two in the latter in which a similar result obtained.

An examination of the facts already stated, and a reference to the *Returns*, will show that the population of London increased during the ten years 1801–11, 17 per cent. from 1811 to 1821, 21 per cent. and from the latter year to 1831, 20 per cent.; but that the various districts experienced fluctuations in the movements of their population at the several periods we have mentioned. Thus in the first period, London within the walls decreased thirty-five per cent, and London without the walls twenty-five per cent. In the second period they increased but slightly; the former at the rate of one per cent. and the other of six per cent. The increase of the borough of Southwark in those periods was 7, 19, 7 per cent. That of Westminster, 2, 12 and 11 per cent.—of the parishes within the bills 37, 24, 23 per cent. and of the adjacent parishes not within the bills, 32, 38 and 36 per cent.

The population of England experienced an increase, from 1801 to 1811, of 14½ per cent. from 1811 to 1821 an increase of 17⅞ per cent. and from 1821 to 1831 one of 16 per cent. The increase of Wales in the same period was 13, 17¼ and 12 per cent. and that of Scotland 14, 16 and 13 per cent. and finally, that of the whole of Great Britain 15¼, 14, 15 per cent.* The increase of the metropolis from the beginning of the last century to 1831, was 222 per cent. while that of the population of the whole of England within the same period was 154 per cent. that of Wales 117 per cent. that of Scotland 87 per cent. and finally that of the whole of Great Britain 144 per cent.†

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* In the same periods the increase of the female sex, (by adverting to which a more accurate knowledge of the increase of population may be obtained, as we thereby virtually omit throughout the calculation, such of the army, navy, and merchant seamen as are not in Great Britain,) was 14.15; 15.71; 15.45 per cent.

† The ratio of increase in each county taken separately, is found to have differed very materially. In Lancaster from 1700 to 1831, it amounted to 800

Captain Graunt enters into a long and curious calculation with a view of ascertaining not only the probable population of London in his time; but also the number of years that that population would require to double itself "by the ordinary proportion of breeding and dying." The results to which he arrives are, that the breeders whose numbers he estimated at 24,000 pairs, would require eight years to double themselves in plague seasons, and seven years in ordinary times.

> "Wherefore since there be 24,000 pair of breeders, that is one-eighth of the whole, it follows that in eight times eight years, the whole people of the city shall double without the access of foreigners."

Elsewhere he makes out the accession with the aid of foreigners, (by which name he understands people from the country,) to be from two to five in fifty-six years. We suspect, however, that the worthy gentleman was far from the truth on this point; because, judging from the increase which took place from 1631 to 1700, and from 1750 to 1801 the doubling of the population would have required in the first period about one hundred and fifteen years, and in the second about one hundred and fifty-one years. On the other hand, basing our calculation upon the progress of increase during the last thirty years throughout the entire metropolis, we find that the doubling of the population would require only between forty-two and forty-three years. As regards the doubling in the whole of Great Britain, it will be found on basing our calculation upon the increase that has taken place during the period above mentioned, that the time required will be $54\frac{11}{100}$ years. In England and Wales alone 53 years, and in Scotland $62\frac{3}{4}$ years. The females alone double their number in a little more than fifty-seven years.

It is a fact, the truth of which must be recognised by every one

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per cent.; in York West Riding 417; while in Rultand it was only 17, and in Northampton, 50. The ratio of increase in the manufacturing and mining districts in the three ten year periods 1801-31, was $18\frac{1}{4}$, $20\frac{1}{4}$, $22\frac{1}{4}$, and from 1700 to 1831, 295 per cent. In the agricultural counties $9\frac{1}{2}$, $15\frac{1}{4}$ and $10\frac{2}{3}$, and from 1700 to 1831, 84 per cent. In the metropolitan counties $16\frac{1}{4}$, $18\frac{1}{8}$, $15\frac{1}{4}$, and from 1700 to 1831, 147 per cent. The above statement as Mr. Marshall very properly remarks, shows the change that has taken place in the relative importance of the English counties since 1700, in a more perspicuous point of view than any in which it has heretofore been exhibited; the increase is seen to predominate greatly in the manufacturing and mining districts, while the statement of the population of the principal towns of England and Wales, shows that the increase of the agricultural counties is principally in the towns; so that the rural population of England, as in the agriculturing counties of Scotland, appears not materially, if at all, to have increased since 1700.

who has paid some attention to medical statistics, that the movement of population is every where greatly modified by wide-spreading maladies, independently of the differences arising from the increased mortality occasioned by the prevailing disease. This modification is observed whether the malady giving rise to the excess of mortality, be endemic or of frequent occurrence; or whether its visitations occur at long intervals. The modification to which we allude, arises principally from the greater rapidity with which the population is renewed in places usually unhealthy and everywhere subsequently to times of unusual mortality. The first is observed, for example, in marshy districts, where although the number of deaths proportionally to the population may be greater than in other situations, and the mean duration of life shorter, the population does not, as it might have been anticipated to do, diminish;—marriages taking place earlier in life, and the number of births being thereby as well as by a smaller number of checks, and perhaps a greater procreative force, considerably increased in a given extent of territory and proportionally to the number of inhabitants. Belgium offers us many facts in corroboration of this statement, for wherever in that country the mortality proves larger, the number of births will also be found to be greater. So often indeed has this been observed, that by many writers on political economy it has been regarded in the light of an axiom.

Whenever also an epidemic disease of a severe and highly fatal character prevails and carries off a great number of inhabitants, or whenever a country has suffered from scarcity of food, or from the scourge of war, the mortality thus occasioned, is succeeded, almost immediately after, by an extraordinarily large number of marriages and births. To such a degree, does this sometimes occur, that many couples who, though cohabiting together, had long ceased to have children, reäcquire the procreative faculty. Finally, severe and fatal epidemics are generally succeeded by periods of uncommon healthfulness, when the proportion of mortality to births diminishes considerably. Whether the causes of this circumstance are to be sought for in the fact, that the distemper has carried off the declining and worn out constitutions, and that the previous mortality has afforded more room and a greater plenty of food to the survivors, thereby promoting, as Dr. Short and Mr. Malthus have conjectured, a meliorated condition of the lower classes of the population; or whether finally, it is in some measure the result of the afflux of people from other parts, are so many points we shall not undertake to discuss at present. All we need insist upon here is, that whatever be its real cause, the fact to which we allude has been verified over and over again, and is attested by the most undoubted authorities. It was noticed in Holland and Belgium in the years 1815–16–17–18–20, as well as in some of the French departments, after the invasions of the allies in 1814–15, and after the great scarcity which occurred in 1817; and every one who has read Malthus, must recollect the statement quoted by that author from Sussmilch, which shows the movement of the population of Prussia and Lithuania before, during and after the great plague which ravaged those countries in 1709–10, and establishes the fact in question in the most satisfactory manner.* An equally striking example of it is furnished by the history of the plague at Marseilles in the year 1720; for although it is shown, by the records of all the parishes, that the mortality on that occasion was very considerable,—amounting to nearly 40,000, the population of that city was as large five years after as it had been previous to the commencement of the pestilence.

Nor is it less certain that the various circumstances we have here mentioned, are confirmed by facts observed in England. On inquiry, it will be found that in those countries where the number of deaths is proportionally large, the number of births is so also to a remarkable degree. A similar result has been observed in London, as the following statement from Mr. Graunt's work, which is fully borne out by a series of tables contained in Mr. Marshall's volume, will show.

> "The next observations we shall offer, is the time wherein the city hath been *repeopled* after a great plague, which we affirm to be by the second year. For in 1627, the christenings, (which are our standard in this case,) were 8,408, which in 1624 next preceding the plague year, 1625, (that had swept away above 54,000,) were but 8,299, and the christenings of 1626, (which were but 6,701,) amounted in one year to the said 8,408. Now, the cause hereof, for as much as it cannot be a supply by procreations; *ergo* it must be by new affluxes to *London* out of the country. We might fortify this assertion by showing that before the *plague* year, 1603, the christenings were about 6,000, which were in that very year reduced to 4,789, but crept up the next year, 1604, to 5,458; recovering their former ordinary proportions in 1605, of 6,504, about which proportion it stood till the year 1610."

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* During the years 1709–10, when the plague occurred in Prussia and Lithuania, the mortality amounted to 198,693. This reduced the population to 322,267. But notwithstanding this very great diminution in the number of inhabitants, the marriages in the next year were nearly double their average number during the six years preceding. In the year previous to the plague, the number of marriages was 6,082—that of births 26,896. In 1711, the former amounted to 12,028, and the births 32,522. The marriages were therefore in the ratio of one twenty-sixth, and the births of one-tenth of the remainder of the population.

Graunt here attributes, perhaps, more influence to the afflux of people from the country, and less to the augmentation in the number of marriages and procreative power than others would do, considering as he did, that a given number of births supposes always a fixed proportional number of inhabitants. But whether he be right or not in his conjectures, the facts he states in relation to the city of London, show that the latter affords the confirmation of the circumstances alluded to: for either one or the other of two things must be admitted to have occurred—that a reduced population produced a comparatively larger number of births, or that the city was, as Mr. Graunt affirms, repeopled by emigrations in a very short space of time. The same result will be found to have obtained in England at a much later period. Mr. M. furnishes at page 27, a statement of the number of baptisms and burials in every county of England and Wales in each of the seven years, 1798–1804, a period considered as one of the most remarkable in the history of Great Britain, when the whole world either openly or insidiously were in array against it. Nevertheless, after the first effects of the war had subsided, England presented an unprecedented increase of population—the excess of baptisms over burials in 1798, considerably exceeding the like excess in any former year. After the peace of Amiens, the same effect was produced, and the general peace in 1815 was also followed by an unprecedented excess of baptisms.

The population of London increases in great measure by emigrations from the country and from foreign parts. This will be immediately seen by a reference to the statements furnished by Mr. Marshall. They show that from the year 1604 to the present century, the number of christenings, which furnish the only clue to a knowledge of the number of births in the metropolis and throughout England, was almost always below that of burials, sometimes to the amount of 7, and even 8,000. In a very few instances only were they equal to the latter, and in still fewer superior. It is very clear, therefore, that the increase of the population must have entirely depended, during that time, on the afflux of people from the country or elsewhere. From 1802 to 1830, the proportion of the christenings to deaths has, with the exception of one year, been constantly the reverse of what it was prior to that period; the excess of births over burials being in some years as great as 6,000, (the whole number being 30,000, and that of deaths 24,000.) Yet, notwithstanding this change, the excess of births since 1802, will not serve to account alone for the increase of the population, because between 1801 and 1821, the excess amounted to about 72,000, while the augmentation in the number of inhabitants was about 375,000. Nor is it less certain, that the population of England and Wales generally, also increases in another way than by the excess of births over burials. One of the tables contained in Mr. M.'s work shows, that from 1700 to 1820, the increase in the whole country amounted to 6,744,200. From 1780 to 1820, the excess of births over deaths amounted to 3,456,489. Now, the increase of population from 1700 to 1780, amounted to 2,356,552. These two sums—the excess of births from 1780 to 1820, and the increase from 1700 to 1780, added together, give 5,813,041. By deducting this last sum from the total increase of the population, 6,744,200, we have a balance left of 931,267, which, supposing no omissions to have been made in the returns, constitutes the increase of population beyond the excess of births, and is necessarily the result of emigrations from Ireland and other parts.

But these tables are not only interesting to us from their establishing the fact, that the population of London and of England generally, increases by emigration from without, but also from pointing out other facts relating to the proportional number of births to burials in different parts of the country, and which we shall have occasion to notice in the course of this article.

In England and Wales the average number of marriages, (basing our calculation upon the returns of twenty years, 1801–21,) amounts to 87,076 annually, and in England alone to 82,424. The average number in each of the ten years, ending with 1790, was 67,253.5; in each year from that period to 1800, 72,258.3; to 1810, 83,209.1; to 1820, 91,042.6. In the ten years from 1801 to 1811, the proportion of marriages to every 100 of the population of England and Wales, was 9.4. In England alone, 9.47. From 1811 to 1821, the proportion in both countries combined was 7.67; in England alone, 9.06. In each of the ten years from 1790 to 1800, the number in 1,000 of the population of England and Wales was 81; in each of those from 1800 to 1810, 82; and from 1810 to 1820, 76. Finally, in the *Returns* of 1831, we find a table exhibiting the proportion of marriages to the population in a different and more simple manner. From this table we learn, that in the five years from 1796 to 1800, there took place in England one marriage in every 123; from 1806 to 1810, one in every 122; from 1816 to 1820, one in every 127, and from 1826 to 1830, one in every 129 of the population of those respective periods. But while such was the proportion in all England, it varied considerably in some of the counties taken separately. In the ten years ending with 1800, the proportion to every thousand of the population was in *Middlesex*, 106; in *Hereford*, 58. In the ten years ending with 1810, Middlesex presented a proportion, to the same number of the population, of 106; Hereford of 61; and from 1810 to 1820, Middlesex gave 96; Hereford 57, and Flint in Wales 55. The same county in the various periods we have mentioned gave different results, Middlesex presenting 106, 106, 96; Lancaster 83, 92, 81; York West Riding 74, 95, 80; Glamorgan, (Wales,) 56, 82, 64. Both these facts will be further illustrated by the following statement, extracted from the tables already quoted from the Population Returns of 1831.

	1796—1800.	1806–10.	1816-20.	1826-30.
Bedford	1 in 113	131	124	129
Bucks	148	144	140	149
Cambridge	118	130	117	124
Hereford	183	144	171	149
Middlesex	95	94	101	102
Rutland	131	161	142	138
Surrey	134	129	139	129

On comparing these proportions with those observed in France and the Netherlands, it will be perceived that the number of marriages in England is greater than in those two countries; for from the official documents before us, we find that in France the average number in each of the years, 1817–29, amounted to one in 132.4 of the population, and that the same proportion obtains at present in the Netherlands. In the department of the Seine, however, the proportion agreeably to the statements published in 1827, amounted to one in 109; but in the department of La Manche, it did not exceed one in 198. In Paris, the number in 1820 was one in 123, and in 1827, one in 131, while in London in 1820, the proportion, according to the parish registers, was one in about 100.

The number of baptisms in all England and Wales in each of the four ten yearly periods ending with 1790, 1800, 1810, 1820, amounted to 2,324,298; 2,538,434; 3,027,526; 3,585,727, giving an average in each year of the first period of 232,449.8, of the second period of 253,843.4; of the third period of 302,752.5, and of the fourth of 358,572.7. The ratio to every 100 marriages in each of the ten years ending with 1790, 1800, 1810, and 1820, was 348, 351, 363, 380. The ratio to a marriage in the ten years, 1801–10, was 3.63; in the ten years, 1811–20, 3.8.

Finally, the proportion of registered baptisms to the population in England was in the five years 1796—1800, one in thirty-six; 1806—1810, one in thirty-four; 1816—20, one in thirty-five; and 1826—1830, one in thirty-seven. The proportion of baptisms in the different counties of England and Wales, like that of marriages, differed very considerably in the various periods we have mentioned. In the ten years ending in 1790, the ratio in Berks was 422 to every 100 marriages; that in Hertford, 427; Denbigh, (W.) 428; Montgomery, (W.) 429; while in Middlesex, where the proportion of marriages was greatest, the ratio was only 255; and in Carmarthen, (W.) 271. In the next period ending with 1800, the ratio in Middlesex was still lower than it had been in the preceding, being only 244; while that in Montgomery, (W.) was 449; and that in Flint 500. In the third period ending with 1810, the ratio in Middlesex was 238; and those in Flint 490; Rutland 457; and Hertford 478. In the fourth period ending with 1820, the ratio in Middlesex was 280; in Hertford 519; and in Flint 560. The ratio is found to have increased in some counties at each successive period; though in some cases the reverse occurred.

The ratio of births to the population in the separate counties as well as the diversity of the proportion in each of these, and the frequent examples of progressive improvement in the number of births in the same county, is exemplified in a table contained in the *Population Returns*, from which we offer a short extract.

1796—1800.		1806–1810.	1816–1820.	1826–1830.
Middlesex - - - -	1 in 39	40	41	40
Lincoln - - - - - - -	32	31	31	31
Berks - - - - - - -	33	33	33	33
Kent - - - - - - -	30	29	31	34
Monmouth - - - - -	56	50	53	59
Northumberland - - -	47	43	41	41

These proportions are not as considerable as they are found to be in the Netherlands, in France, or in Sweden. In the first of these countries the proportion from 1814 to 1824 was one in 28.5 individuals; in France it amounted from 1817—29 inclusive to one in 32.1; and in Sweden in 1820 to one in 30.8. The proportions varied in the different parts of France and Netherlands. In the department of Loire, in the first of these counties, it amounted to one in $25\frac{2}{3}$ in the department of Calvados to one in $43\frac{1}{6}$; while in the Netherlands the open country gave one in 29.14; and the cities one in 26.04. As regards the proportion of births to marriages, it will be found that the Netherlands presented in the ten years, 1815–24, an average of 4.66 for every marriage. Belgium alone one of 4.72; and France from 1817 to 1829 one of 4.105, if we take into consideration the whole number of births; or one of 3.815 if we have regard to legitimate children only. But we have already stated, that the number of births in England and Wales exceeds that reported, and on which the above calculations are apparently based.

In London the average number of births in each of the years included between 1801 to 1811, amounted to 22,156; and in each of the years from 1811 to 1821 to 28,490;—the largest number in the first period being 25,426; and the smallest 23,358; the largest in the second period 30,422; and the smallest 26,274. In the year 1700, the number was 16,585; in 1750, 17,080; and in 1800, 21,776. By comparing these sums with the amount of the population existing at those different periods, in the five divisions of the metropolis from which they are reported, we find, that the ratio of births in London in 1700, was one in 40.66; in 1750, one in 38.9; in 1801, one in 41.39; in 1811, one in 39.96; and in 1821, one in 41.64; and that in 1820, the proportion to marriages was as 2.38 to one. These numbers are inferior to those obtained in Paris or Philadelphia: for in the former of these cities the proportion is generally one to 31.5; and in the latter one to 22.6 of the whole population; while in 1828, the proportion to every marriage at Paris was 4.06. We cannot, however, be surprised at the difference which is here presented, inasmuch as the number of births reported in London is probably greatly inferior to that which really occurs.

We now proceed to speak of the mortality of England and Wales, and of that of London. It can hardly be necessary to premise, that in our investigations relatively to the usual mortality of a whole country or of a city, and in our endeavours to form an estimate of the degree of their healthfulness, it is necessary to base our calculations on the results obtained during ordinary years; for every one must be aware, that epidemic diseases, or even endemics when they prevail with unusual severity, augment often very materially the number of deaths and that, if we selected those years as points of comparison, we should necessarily arrive at very erroneous conclusions. Nor should we select the years immediately succeeding the periods of unusual mortality; because experience has shown, as we have already had occasion to remark, that the latter are generally followed by season of great comparative healthfulness. England and its immense metropolis, have experienced several visitations from pestilential diseases, which served to swell the number of deaths, on some occasions, to an awful degree, and Mr. Graunt cites several years, and others of the same kind have occurred since his time, which proved very sickly, and presented a mortality of much larger extent than usual, although there did not prevail a regular epidemic disease to account for that effect. In order therefore to avoid the erroneous conclusions arising from the selection of such sickly seasons, we shall establish our calculations on a series of years during which no disease of unusual malignancy prevailed, and state the average mortality they presented.

The total number of burials in England and Wales, in each of ten yearly periods, from 1790 to 1820, were as follows; 1790, 1,822,902; 1800, 1,889,574; 1810, 2,053,749; 1820, 2,105,023. This gives an average for each year of the first period of 182,290; for each of the second of 188,957; for each of the third of 205,374; and for each of the fourth of 210,502. In the first the highest number was, (1780,) 191,736; and the lowest, (1781,) 178,718. In the second the highest was, (1794,) 203,328; and the lowest, (1791,) 180,453. In the third period the highest was, (1810,) 208,184; the lowest, (1804,) 181,177. In the fourth the highest was, (1818,) 213,624; the lowest, (1813,) 186,477.

These sums on examination will be found to give the following ratio of burials to every hundred marriages in each of the ten years ending as above, 1790, 271; 1800, 261; 1810, 246; 1820, 227; or to each marriage 2.71; 2.61; 2.46; 2.27. The ratio to births in the first period was as 78.42 to 100; in the second as 74.43 to 100; in the third as 67.83 to 100; and in the fourth as only 58.73 to the same number.

If now we compare the proportion of mortality to the whole population of England and Wales, we shall find, that in the year 1700, there died one individual in every 41½. In 1750, 1 in 42.11. In each of the ten years ending with 1800, the average ratio was 1 in every 45.9. In each of the ten years ending with 1811, 1 in 49.49, and in each of the ten ending with 1821, 1 in 56.9. As regards England alone, we find, that from 1796 to 1800, the average number was 1 in 48 annually; from 1806–10, 1 in 51; from 1816–20, 1 in 57; and from 1826, 1 in 54.

These statements taken in conjunction with those that precede, will lead to the most gratifying conclusions, and deserve in a very high degree the attention equally of the statesman, physiologist and moralist of all countries; for they show that while the proportion of baptisms to marriages has progressively increased during the forty years ending with 1820, the proportion of burials to marriages, to births and to population, has diminished progressively and considerably.

The progressive decrease of mortality has manifested itself not only in England generally, but in almost all the counties taken separately, Dorset, Hereford, Oxford, Wilts, York East Riding being the only exceptions during the four quinquennial periods selected by Mr. Rickman in the tables of the population returns.

As may readily be presumed, the ratio of burials to marriages differs considerably in the various counties, and has done so in the same county at various periods. In the ten years ending with 1790, the counties presenting the smallest ratios were Pembroke and Cardigan, both of which are in Wales; the former giving 205 burials to every 100 marriages, and the other 211. The highest ratios were in Glamorgan, (Wales,) and Surrey;—the former giving 410, and the other 347 to 100.

In the ten years ending with 1800, Flint gave a ratio of 205; Carmarthen of 205; and Cornwall, (England,) 225; while Surrey gave one of 329.

In the ten years ending with 1810, the county of Cardigan, (W.) gave 189; Anglesea, (W.) 191; Gloucester 198; and Hereford 299.

Finally in the ten years ending with 1820, Anglesea gave 175; Pembroke 190; Gloucester 181; Hereford 324; and Flint 300.

As regards the proportion of mortality to the population of each county, it is totally out of our power, interesting as the subject might be to those who are engaged in statistical pursuits, to enlarge much upon it on the present occasion. We shall, therefore, content ourselves with stating the proportions obtained at four quinquennial periods, in a few of the more prominent counties.

1796—1800.		1806-10.	1816-20.	1826-30.
Dorset - - - - - -	1 in 62	56	64	58
Middlesex - - - - - -	37	46	51	45
Kent - - - - - - -	41	38	51	49
Monmouth - - - - - -	72	70	72	83
Wilts - - - - - - -	60	58	64	57
Surrey - - - - - - -	42	46	51	50

From this it will be seen that in the first of those periods the highest proportional mortality was in Middlesex, the lowest in Monmouth. In the second period Kent presented the highest, and Monmouth the lowest. In the third period Kent gave again the highest, Monmouth the lowest. Finally in the fourth period, Middlesex once more gave the highest mortality, and Monmouth the lowest.

On comparing the above statements with the bills of mortality and other documents relative to the movement of the population in France, the Netherlands, &c. we shall find, that in having regard only to registered burials, England has the advantage over either of those countries. Thus in France the proportion from 1817 to 1829 was not less than 1 in 39.7. In 1781, it was 1 in 29.2; and in 1802, 1 in 30.1. In the Netherlands each of the ten years 1815, 24 presented an average mortality of 1 in 39.86—varying from 1 in 36.32, (1817,) to 1 in 43.93, (1824.) In general the average number in that country is 1 in 42. In Belgium alone it is 1 in 43; and in Sweden 1 in 41.07, (1820.)

The mortality in the different provinces of Belgium varied from 1 in 39, (West Flanders,) to 1 in 56, (Namur.) In France also the proportion varied in the ten years 1817–27 from 1 in $27\frac{3}{5}$, (Finistère,) to 1 in 53.5, (Haute Pyrénées.) Thirteen rich provinces in five years presented an average of 1 in 46.31; while in 14 of the poorest departments the average was 1 in 33.72.

In France the proportion of births to deaths in the twelve years 1817–29 was 1.24 to 1. According to calculations founded on the census of 1827, it appears that there occurred in France 1,000 births to 798.48 deaths; the proportion varying in the different departments from 1027.60 deaths to 1,000 births, (Finistère,) to 656.38 deaths to 1,000 births, (Sarthe.)

With regard to the mortality of London, Mr. Marshall's tables show that the absolute numbers of deaths have not varied very considerably from 1780 to the present day. Nevertheless the variations they do present, taken in conjunction with the very remarkable increase of population in the metropolis, prove that the proportional mortality has greatly diminished. This will be rendered apparent by the following statement. The average annual mortality of London within the bills, from 1780 to 1790, was 23,080; from 1790 to 1800, 26,508; from 1800 to 1810, 19,927; from 1810 to 1820, 23,331; and from 1820 to 1830, 21,909. The average of those five periods taken conjointly is 22,950, or one thousand more than the full amount of the last period taken singly.

The proportion of the mortality to the population in 1631, was 1 in 21; in 1700, it was 1 in 34.26; in 1750, one in 27.56.* The proportion between 1790 and 1800, calculated on the population as returned in 1801, was 1 in 29.35; between 1800 and 1810, calculated on the population of 1811, 1 in 44.56; between 1810 and 1820, 1 in 45.02; and finally, between 1820 and 1830, 1 in 55.81. In 1831 the mortality was 25,337, or 1 in 48.27.

Our readers will immediately perceive the difference of the rates of mortality in England generally, and in London in particular, and the smaller proportion of deaths in the whole country considered in the aggregate, and the counties taken separately. Some of the tables contained in the works before us, tend in some degree to establish this fact in another way; for they show, that at the very periods when the mortality exceeded the births in London—from 1700 to 1801, many of the counties, Lancashire and the West Riding in Yorkshire, for example, presented seldom, if ever, a similar result; the baptisms generally exceeding the burials.

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* These proportions are calculated on the mortality reported by Marshall in his general tables at the end of the volume. At page 63 he gives a different return of deaths in 1700 and 1750; and at page iv, calculates on the last numbers. Hence he finds that in the first of these years the mortality was 1 in 33, and in the second, 1 in 26.

We have already, in an early part of this article, stated the relative proportion of burials to births in London. Our statements then had reference to the metropolis generally—both within and without the walls. The bearing of the subject on the one which at present occupies our attention, will be a sufficient excuse for recurring to it again, with the view to point out the influence of locality on the mortality of the different districts of which London is composed. It is natural to presume, that in all large cities there are some portions which prove more sickly than the rest, and where consequently the mortality is more considerable. Places of the sort constitute, as it were, small communities, embracing various kinds of localities, and containing individuals placed under circumstances of the most opposite character. In Paris, for example, Mr. Villermé has found, that the mortality in the private houses of the first arrondissement, amounted to 1 in $58\frac{24}{100}$, while in those of the twelfth, it arose to 1 in 42.63; the first arrondissement representing the richer, and the twelfth the poorer portions of the city. Including the deaths occurring in the hospitals, and which take place principally among individuals sent from the poorer districts, the mortality in the first arrondissement amounted to 1 in 41.20; while in the twelfth it rose as high as 1 in 24.81. Facts of a similar import may be stated in reference to Philadelphia, where the mortality among the blacks, who inhabit the worst parts of the city, was found by Dr. Emerson, to amount to 1 in 21.7; while that among the white population did not exceed 1 in 42.3.

As may be expected, London does not differ in that respect from other large cities. In all the years between 1700 and 1802, the burials presented a greater excess, comparatively with the population, over baptisms in those districts within the bills where the houses are more compactly built; and from 1802 to 1820, the excess of baptisms over burials, which, as we have seen, obtained in the whole metropolis, was proportionally less considerable than in the other parts. Thus, we find, that in 1760, the excess of burials over baptisms within the bills of mortality, was 4,879; while in the whole metropolis, it was only 4,845. In 1770, within the bills, it was 5,325, and in the whole metropolis, 5,159. The excess of mortality over baptisms, though often large in the city proper, was particularly and sometimes extraordinarily so in the out parishes within and those without the bills; while in the city and liberties of Westminster, though more constantly observed, it was usually comparatively small. It is a fact worthy of notice in this place, that from a table exhibiting the burials, baptisms, &c. in each of nine years, from 1700 to 1780, and in each of the forty years, from 1781 to 1820, the number of baptisms is found to have exceeded that of burials twenty-four times in that part of the metropolis within the walls; and that on twelve of these occasions, which occurred previous to 1802, the burials exceeded the baptism in all the parishes within the bills. A similar excess of baptisms occurred thirty-nine times during the period above-mentioned in that part of the city situated without the walls. On eighteen of these occasions the burials exceeded the baptisms in all the districts of the metropolis taken collectively—this difference arising from the very considerable excess of burials in the out parishes within and without the bills, where, until the year 1802, the baptisms very rarely predominated over the burials. The different degrees of healthfulness of the various districts of the metropolis, as well as their progressive improvement in that respect, might be satisfactorily established by comparing the proportion of deaths to the population in each of them at various periods. But this we cannot undertake to do, owing to the impossibility of ascertaining the population of each district in different years; as well as to the time and space the investigation would require, even if we had the necessary materials at our command.

It would no doubt also be an object of some interest to ascertain the different rates of mortality at various periods in the separate parishes comprised within the bills. Mr. Marshall's work offers a part of the materials for such an inquiry. But in order to derive full advantage from the latter, it would be necessary to place in apposition to the statement of deaths in each parish, an account of the nature of the localities, of the character, occupation, and mode of life of the inhabitants, and of other circumstances, relatively to which information is not of easy access in this country.

The above calculations in respect to the mortality of London, as well as of England and Wales generally, have been based on the numbers obtained from the parish registers. But from the causes to which we have already alluded, it will be evident, that the comparative, but not the absolute mortality, in various years in that country, can be relied upon; since a large number of deaths are not reported, and consequently not noticed in those registers. In the whole of

England and Wales it is computed, that in the ten years, 1801–11, there were 103,560, and in the ten years, 1811–21, 95,030 unentered deaths. These of course would increase the proportional numbers far above those we have mentioned; presenting 1 in 43.20 between 1801–11, and 1 in 48.28 between 1811–20. As regards London in particular, it is supposed that about 8,000 burials are thus deficient. These added to 25,337 reported in 1831, would give 33,337, or 1 in 36.7, instead of 1 in 48.27, as stated above. These facts will lead us to the conclusion, that in expressing the opinion, that the mortality of Great Britain, its cities, and its hospitals, is *greatly* inferior to that of any other country in Europe, and that Great Britain is at present the most healthy country with which we are acquainted, Dr. Hawkins has somewhat exaggerated the superiority of his country. For if the number of unregistered burials throughout England and Wales be taken into consideration, the superiority of these countries over France will not be found sufficiently great to justify so decided a boast on the subject. If we compare the average mortality of London as stated above, with that of other cities of Europe, or of this country, we shall also find, that although the comparison will give satisfactory results, the superiority is far from being such as to authorize the assertion made by the same writer that the most favoured spots in Europe, the places which have long been selected as the resort of invalids, and the fountains of health, are more fatal to life than even the great metropolis. In Belgium it is not more than 1 in 36.9, while in Paris the average proportion in the five years, 1817–21, amounted to 1 in 32.43; and from 1821 to 1826, to 1 in 36.44. But if the cities we have mentioned do not present a greater number of deaths than London, our own city, Philadelphia, was greatly superior to it in point of healthfulness in the twelve years, 1807–20; for the average mortality in that period, according to Dr. Emerson, was 1 in 47.8—the proportion varying from 1 in 38.25 (1820) to 1 in 56.53 (1815.) It is proper to remark, however, that from 1820 to 1830, the advantage was less decided; for during that period the mortality varied from 1 in 30.58 to 1 in 42.94, which gives an average of 1 in 38.85. But this period, it should be recollected, was one of unusual sickliness over the whole country, and cannot, therefore, afford correct criteria for judging of the ordinary proportions of the mortality in this city, or in other parts of the United States.

It would be difficult at the present time, and in this country especially, to ascertain with accuracy whether the number of sick in England and London is greater among individuals of one sex than among those of the other, though we may presume, from what we observe here, that physicians are more employed among females.

With respect to mortality, however, we are furnished by Mr. Marshall with documents showing the difference of the proportion in the two sexes. In nine ten yearly periods, from 1700 to 1780, and in forty consecutive years, 1781—1820, the mortality among females in all England and Wales, exceeded that among males nineteen times, and that among males exceeded that among females thirty times. From 1802 to 1821, a larger mortality among males occurred in every year but one, (1819,) the excess amounting from 1801 to 1821, to little short of 26,000, or 1,300 every year. As during the whole of that period the female population exceeded the male, this fact alone will show plainly that the mortality among the latter is much greater comparatively than among the former, and consequently that the value of life in England, &c. is in favour of females. On examination, it will be found, that the proportion of deaths was as 72 among the males, to 71 among the females, while the average proportion of the sexes in 1801 and 1811, was as 12 females to 11 males, and in 1831 as 38 females to 37 males. Independently of this it may be remarked, that the proportion of deaths among females to the whole number of that sex in each of the years, 1801–11, was 1 in 54.62, while the proportion at the same time among males, was 1 in 49.66. In London, in particular, it is found, judging from the average mortality in each of the ten years, 1810–20, and the population of 1821, that the proportion of deaths among males is 1 in 49, and that among females 1 in 57.21. These facts relative to the greater value of life among females are fully corroborated by the results of calculations made by Mr. Finlaison the Actuary of the national debt, who found that except under the age of 12, and above 85, extreme periods, at which, perhaps, no distinction of mortality is apparent, there is at every other period a remarkable and decided advantage in favour of the female.

The same difference of mortality among the sexes is observed in France entire, where the average from 1817 to 1829, was 55 male to $53.\frac{998}{1000}$ female deaths. In Paris, on the contrary, the mortality among females is in the proportion of 53 of that sex to 47 males in every 100 deaths. The number of deaths among males in Philadelphia is also greater than among females,—the proportion being in a period of sixteen years, 77 females to 100 males.

If we have regard to the proportion of the mortality to the births among the two sexes, we shall find that in France there occur 1000 births to 781.93 deaths among individuals of the male sex, or 4 births to 3 deaths,—the proportion varying in the various departments from 1017.21 deaths to 1000 births, (Finistère,) to 612.26 to 1000, (Creuse.) Among the females there occur, in France entire, 816.12 deaths to 1000 births, the proportion varying from 1037.93 to 1000, (Finistère,) to 643.24 to 1000, (Hautes Pyrenées.) This is equal to 6 births to 5 deaths for the whole country. Taking an equal number of male births, of births of both sexes indiscriminately, and of female births, the respective mortality among these three classes will be found to bear to each other the same relation as the numbers 46, 47, 48.

As regards the city of London alone, we find that in a period of 103 years, from 1728 to 1830, inclusive, the mortality among females exceeded that among males forty times only. Since 1800, the excess of deaths among females has only occurred once, (1816,)—the proportion from 1801 to 1821 being as 29 males to 28 females, while we have seen that the female population in 1811 was to the male as 7 to 6, and in 1821 as 8 to 7.

Mr. Marshall has furnished at pp. 70, 71, two interesting tables, showing the number of deaths within the bills of mortality in each of thirteen gradations of ages in each of the 103 years, 1728—1830. These tables, as Mr. M. himself remarks, bespeak a very marked change in the physical condition of the metropolitan population since 1740. The number that died under two years of age in the ten years, 1740–9, was as 34 to 29 in the ten years, 1820–9, while of those from 2 to 29, the number that died in the latter ten years, exceeds the number in the former by 1 in 17. From 20 to 50 the numbers in 1740–9, were as 29 to 25 in 1820–9; and of those fifty years of age and upwards, the number in the ten years, 1740–9, was as 28 to 22 in the ten years, 1820–9.[*]

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[*] The following statement will show the number of deaths at each of the thirteen gradations in London during the year 1828, as well as the number during the same year at Paris; the latter being added for the purpose of comparison.

	LONDON.	Proportion to population.	PARIS.	Proportion to population.
Under 2 years	6389	1 in 183.51	6392	1 in 137.73
From 2 to 5	2326	504.06	1789	500
5 10	878	1335.36	962	925.6
10 20	861	1361.3	1151	773.50
20 30	1488	788.	2613	340.75
30 40	1790	655	946	941.2
40 50	1985	590.65	1781	500.
50 60	1845	635.4	1831	476.3
60 70	1891	620.01	2466	361.07
70 80	1540	761.33	2410	369.
80 90	615	1906.42	815	1091.21
90 100	100	11724.50	67	13289.55
100 and upwards	1	1172450.00		

This calculation is made on the known population of Paris in 1827, and on

In a series of tables placed at the end of his work, Mr. Marshall has presented a statement of the number of deaths within the bills of mortality under various heads of diseases and casualties in each of the 204 years, 1629—1831. This space he divides into four periods. The first includes all the time between the years 1629–89; the second extends from 1690 to 1739; the third from 1740 to 1789, and the fourth from 1790 to 1831. These tables are highly interesting, as showing the degree of prevalence of certain diseases, the diminished frequency or the extinction of some, and the appearance or increased fatality of others in the course of the four periods mentioned.

The already considerable length of this article will force us to be rather brief on the subject of the contents of those tables, and to limit ourselves to stating a few facts relative to some of the principal diseases. The first column in each table has reference to the number of deaths in child-bed. From these tables it will be found, that the mortality arising from this cause has greatly diminished, for they show that the annual average of deaths in the puerperal state was 234 during the first period, and 201 during the last, although the number of births was nearly as two in the latter period to one in the former. This is certainly highly creditable to the resources of the obstetrical art. Abortion and still-born appear to have remained more uniform, the annual number varying from about 350 to 900, but not increasing progressively each year from the first to the latter of these sums. In 1629, the number was 499; in 1649, 327; in 1685, 759, in 1800, 492; and in 1831, 898. In only one year, (1828,) did it exceed 1000. If we have regard to the great increase of the population of London in each of the four periods, it will become evident, that although the average mortality from the above-mentioned cause does not differ now very materially from what it was formerly, the population has nevertheless decreased considerably.

“The first and second periods exhibit a column headed *Chrisomes and Infants.* Chrisom is a Greek word, signifying an ointment, used apparently to supple or soften the first garment or cloth of infants at their birth: its use in the first instance probably emanated in kindness, and was afterwards converted into a superstitious practice by the priests of both the Greek and Romish churches. The custom appears to have been, to use the anointed, or Chrisom cloth for one month from the birth of the child, and if the child died within that month, it was stated to have died in *Chrisome.* This ridiculous custom, it will be seen, gradually decreased in the metropolis of England from 1629 to 1726, when it

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the estimated population of London in the same year. It is not, therefore, given as correct, but only as approximative. But such as it is, it will serve to show, that except between the ages of 30 and 40, and 90 and 100, the chances of life are greater in London at any of the gradations we have mentioned, than in the French metropolis.

became quite extinct. As the number of deaths reported in *Chrisome* decreased, those under the head Convulsions will be seen to have increased, the cause of death in both cases probably having been the same."

The number reported under the head of Chrisome in 1629 was 2,596.

The number of children cut off by *teething* did not amount to more than 500 annually until 1646, when it suddenly increased very considerably. The average from this period to 1752, was about 1,500 annually. Since then it has gradually diminished; to such an extent, indeed, that from the year 1781 to the present time, the average number has not exceeded three or four hundred annually; while the births within the bills of mortality have in the same period increased from about 19,000 to upwards of 25,000. Rickets, as it appears from Mr. Marshall's tables, and as we learn from Graunt's work, was not reported until 1634, when fourteen deaths are mentioned as having taken place from it. From this circumstance Graunt concluded that it was then a new disease. But be this fact, which if true would be an interesting one, as it may, the disease prevailed very extensively from 1647 to 1715; there being from 150 to more than 500 deaths from it alone every year. From the latter period it gradually but constantly declined, so that the average number from 1750 to 1790 did not exceed five. Since that period the disease has become totally extinct.

Convulsions increased very considerably from 1632 to 1710; the numbers varying in that period from 221 to 5,987. It is to be remarked, however, that many cases of death mentioned in the earlier part of the same period as having occurred in *Chrisome*, ought probably to have been referred to convulsions. From 1710 to 1772 the disease continued to be extremely fatal; the number of deaths from it being seldom less than 6,000, and often higher than 8,000. From 1772 to the present period, the mortality from convulsions has gradually diminished; the annual number of deaths reported being now less than 3,000.

After noticing, in his introductory chapter, the gradual diminution of the above-mentioned diseases, a fact which is justly considered as honourable to the assiduity and integrity of the members of the medical profession, Mr. Marshall remarks, that there are some indications of nature seeming determined to cross the purposes of the latter in despite of all their assiduity; *croup*, *cough*, and *dropsy in the brain*, indicating a determination, since 1790, to fill up the void of mortality which the diminution under the other heads seemed disposed to occasion. *Cough* and *hooping cough* are not returned in the two first periods. From 1740, when the number of deaths from this disease was 280, to 1831, the mortality from it has greatly increased. The number in 1803 was 1004, and in 1831, 1,738. In the intervening years it varied from 326 to 864. *Croup* was not reported till 1793, when there were twelve fatal cases of the disease. From that period the number has increased very considerably, being, in 1830, 126, and in 1831, 119. In the three first periods, from 1629 to 1790, *dropsy in the brain* is reported under the heads of headmoldshot, horse-shoe head, and water in the head. Mr. M. thinks, that prior to 1790 the disease may have been confounded with convulsions. From the first year to 1715, the average number did not exceed twenty-five annually. From that year to 1752, the number rose to 150. After that year the deaths gradually diminished to 50 annually; but in 1790 they once more began to increase, and have ever since continued to do so to an alarming extent; the number ranging during the last few years at little less than 800 per annum.

If now we take a general survey of the mortality from all the diseases incident to infancy, we shall find that the number of deaths in each of the years included within the first period, 1629—1690, varied from 2,715 to 7,280, the number gradually increasing in the course of that time. In the second period, 1690—1739, it varied from 5,556 to 12,611. In third period, 1740—1790, it varied from 5,579 to 11,556, the number gradually decreasing. In the fourth period, 1790—1831, the mortality varied from 5,057 to 7,144—the latter number occurring in 1831, and those in the other years differing little from the first of the last-mentioned sums. Having regard, therefore, to the difference of the population in the districts within the bills during the four mentioned periods, and to its immense augmentation during the last, we cannot but be sensible of the fact, that the mortality from diseases incident to infancy has considerably diminished.

In the first period the deaths from consumption varied from 1,731 to 4,808 annually. In the second, from 2,520 to 4,601. In the third period, from 3,411 to 5,721; and in the fourth, from 3,432 to 5,732. But the reports of this disease are blended, from 1690 to 1700, and from 1729 to 1739 with asthma and *tissick*, so as to leave us very much embarrassed in our inferences. The uniformity of the mortality from that disease for the last hundred years, is certainly surprising. But the report must be looked upon as favourable rather than otherwise, seeing, that during the period in question, the population of the metropolis has more than doubled itself. It is possible, that during the first period a number of deaths occurring from different diseases were classed, through ignorance or design, under the head of consumption, and that in this way the reported mortality from that disease was considerably swelled. This, indeed, we are inclined to believe, from a comparison of that mortality with the one occasioned by all the diseases combined, and with the population of London at the time, as well as from the statement of Graunt, who affirms the fact in the most positive manner. Prior to 1690 *asthma* is not specified Since that period the number of deaths from that disease has varied from 1 to 1,150. But in the instances in which the number is found to be so considerable, the disease is blended, in the reports, with tissick, which, from 1702 to 1729, is mentioned in a separate column, the numbers in which vary from 241 to 511.

The number of deaths reported as having resulted from *French pox* differed considerably in the four periods. In the first it varied from 7 to 114—the average annual number being 29.65. In the second it varied from 29 to 159, with an average of 41.02. In the third period, from 32 to 162, with an average of 85.4; and in the fourth, from 1 to 86, with an average number of 20.8. Viewing the great increase of the population in the fourth period, the decrease of mortality from the disease is remarkable and highly gratifying. From the injudicious mode of treating syphilis in the seventeenth century, we might be led to experience surprise at the small number of deaths reported in the first and second periods, compared with those reported in the third, were we not informed that during the first, at least, many deaths occasioned by the malady were reported under other heads. On this subject Graunt expresses himself in very positive terms.

> "We finde one casualty in our bills, of which, though there be daily talk, there is little effect, much like our abhorrence of *toads* and *snakes*, as most poisonous creatures, whereas few men dare say upon their own knowledge, they ever found harm by either; and this *casualty* is the *French pox*, gotten for the most part, not so much by the intemperate use of venery, (which rather causes the *gowt*,) as of many common women. I say, the bills of *mortality* would take off these bars, which keep some men within bounds as to these extravagancies: for in the afore-mentioned 229,250, we find not above 392 to have died of the *pox*. Now, forasmuch as it is not good to let the world be lulled into a security, and belief of impunity by our bills, which we intend shall not be onely as *death's-heads* to put men in minde of their *mortality*, but also as *mercurial statues* to point out the most dangerous ways, that lead us into it, and misery. We shall therefore shew, that the *pox* is not as the *toads* and *snakes* afore-mentioned, but of a quite contrary nature, together with the reasons, why it appears otherwise. Forasmuch as by the ordinary discourse of the world it seems a great part of men have, at one time, or other, had some species of this disease, I wondering why so few died of it, especially because I could not take that to be so harmless, whereof so many complained very fiercely; upon inquiry I found

that those who died of it out of the hospitals, (especially that of *King's Land*, and the *Lock* in *Southwark*,) were returned of *ulcers* and *sores*. And in brief found, that all mentioned to die of the *French pox* were returned by the *clerks* of Saint *Giles's*, and Saint *Martin's in the Fields* onely; in which place I understood that most of the vilest, and most miserable houses of uncleanliness were: from whence I concluded, that only *hated* persons, and such, whose very *noses* were eaten of, were reported by the *searchers* to have died of this too frequent *maladie*."

From 1629 to 1710 the small-pox and measles appear to have been as remarkable for their variableness as some other diseases for their uniformity. Subsequent to the introduction of inoculation the small-pox became far more general and confirmed in its virulence—occasioning an increased rate of mortality, which continued up to the period of the introduction of vaccination. Since that time the disease has gradually abated. In the first period, 1629–89, the highest mortality from the disease was 2,507. On twenty-four occasions it exceeded 1,000, and on four, 2,000. In the second period, 1690—1739, the number of deaths varied from 196 to 3,271. On forty-one occasions, it exceeded 1,000; and in eleven of these it rose beyond 2,000, and on five beyond 3,000. In the third period, 1740–89, the number fell short of 1,000 only four times; on seventeen occasions it exceeded 2,000, and on seven 3,000. Finally, in the fourth period, 1790—1831, the mortality varied from 421 to 3,548, (1796.) On twenty occasions only did it exceed 1,000. From the year 1800 it has fallen short of that number nineteen times; the average being now from five to six hundred annually.

It is a fact which seems in a very high degree to deserve attention, that the measles, which continued exceedingly variable and moderate down to 1800, except on particular years, have become, since that date, greatly increased and confirmed in virulence. In the year 1801 the mortality from that disease was 136; in 1808, 1,386; in 1816, 1,106; in 1831, 750:—the average number in the thirty years, being 662.50.

Ague and fever were reported together from 1629 to 1701; and separately from the latter period to 1780. Spotted fever, which, in the first period, was mentioned separately, was reported together with purples from 1690 to 1700. After that period these diseases are once more mentioned separately. From 1729 to 1730 they are again reported together as well as with *fever;* ague being now placed in a distinct column. In the third period, 1740–89, no mention is made of spotted fever or purples, and in the fourth, ague is not spoken of separately. From this circumstance, we must either infer, that some of the diseases we have mentioned disappeared from London, or that they have all been lately confounded together under the generic name of *fevers*. From 1629 to 1689 this form of disease seems to have been exceedingly variable in respect to frequency. From that period to 1750 it became more uniform and general; but from that year to the present time it seems gradually to have declined. In 1750 there were 4,292 deaths from that disease. In 1800 the number had diminished to 2,713, and in 1831 it was reduced to 965. The average annual number in the ten years, from 1750 to 1760, was 2,781; from 1760 to 1770, it was 3,514; from 1770 to 1780, 2,678; from 1780 to 1790, 2,473; from 1790 to 1800, 1,935; from 1800 to 1810, 1,777; from 1810 to 1820, 1,072; from 1820 to 1831, inclusive, 916.

Inflammations, on the other hand, have increased in a greater ratio than fevers have declined. In the second period the number varied from 1 to 62. In the third period, from 35 to 308; and in the fourth, from 142 to 2,399. Pleurisy, which is reported separately, varied in its fatality; in the first period, from 9 to 45; in the second, from 6 to 77; in the third, from 9 to 70; and in the fourth, from 3 to 37. It is presumable, however, that many cases of deaths from pleurisy are reported under the head of inflammation, inasmuch as it is difficult to suppose that in so populous a city as London, so few deaths should be occasioned by a disease which carries off annually about 40 individuals in New York, and upwards of 200 at Paris. In speaking of the mortality from inflammation and fevers, Mr. Marshall remarks, that supposing the distinctions to have been properly made in the reports, the decrease of fever and increase of inflammations, are features of peculiar interest, and may be regarded as additional evidence of the inscrutable working of nature and its every varying yet uniform process. For our parts, without wishing to deny that *inflammations* have increased, and that the fevers of nosological writers have diminished in frequency, we are inclined to believe, judging from the change we know to have occurred in the views of physicians in this and other countries respecting the relationship of those diseases, that the practitioners, and even the *searchers* of London, have experienced a similar change in their sentiments, and that at present, and for some years back, many cases of serous and mucous inflammations are, and have been, reported under their true name, which would formerly have served to swell the list of deaths from *fevers*.

Dropsy appears to have progressively increased from 1629 to 1750. In the first of those years, the number of deaths from that malady amounted to 235. In 1689 it attained to 971; in 1740, 1,219; and in 1750, 1,051. Subsequent to this date, the disease seems to have somewhat abated until 1810, since when it has once more manifested a tendency to increase. In the latter year, the deaths reported were 778, and in 1831, they were returned, after a gradual increase during the intermediate period at 1,108. Considering, however, the difference between the population of 1750 and that of 1831, we cannot help being struck with the decreased prevalence of the disease. In the former, the deaths from it were 1 in 622.17 of the population, and 1 in 23 of the total mortality of that year; while in the latter it was 1 in 1104.7 of the population, and 1 in 23 of the total mortality.

In the first period the deaths from palsy varied from 10 to 31, and those from apoplexy from 17 to 138, the increase being progressive. In the second period the deaths from palsy varied from 14 to 46—those from apoplexy from 71 to 243. In the third period the number from palsy was from 41 to 105, and from apoplexy from 178 to 276. Finally, in the fourth period palsy gave a mortality of from 62 to 246, and apoplexy one varying from 187 to 555. From this it will be perceived, that apoplexy and palsy are becoming gradually more prevalent, particularly since the commencement of the last of the four periods. It is proper to remark, that in many of the years comprised in those periods, apoplexy and *suddenly*, which were confounded together for a considerable time, are reported separately. But it is probable that, at least the majority of the deaths classed under the head of *suddenly*, were occasioned by apoplexy, because sudden deaths from accidents are mentioned in a separate column. For this reason we have not considered them separately.

In the first period, 1629–89, which includes several of the years during which the plague prevailed with most virulence in London, the disease is mentioned thirty-seven times, from 1630 to 1679, inclusive. From the tables now under consideration, it will be found that in the first of those years there were 1,317 deaths from that pestilence; in 1636, 10,400; in 1647, 3,597; in 1665, 68,596, and in the following year, 1,998. The total number of burials in those years was 10,554; 23,359; 14,059; 97,304, and 12,738. In all the other years mentioned, with the exception of 1631, when the deaths from plague amounted to 274, and 1648, when they exceeded 600, the mortality was trifling. The disease has not been returned since the year 1679, under the name of *plague;* but Mr. Marshall reports in his second table, down to 1740, a number of deaths under the head of stopping of the stomach, rising of the lights, surfeit, looseness, vomiting, and twisting of the guts, which diseases, according to him, appear to partake of the character of the plague or pest of 1665, or of the cholera of 1831–2.

The following table, which we have prepared from several extensive ones contained in Mr. Marshall's work, will show the number of deaths from the plague in several visitations of the disease prior to the years already mentioned, together with the total number of burials.

	Total burials.	Deaths from plague.
1593	25,886*	11,503
1603	42,042†	36,269
1606	7,920	2,124
1607	8,022	2,352
1608	9,020	2,262
1609	11,785	4,240
1610	9,289	1,803
1625	54,265	35,417

During the intervening years, and until 1630, the disease prevailed to a greater or less extent, the deaths varying from 3 to 896.‡

It is proper to remark in concluding this statement of the mortality occasioned in London by the plague, that considerable as it certainly often was between the years 1592 and 1667, it appears, from the reports of historians, to have been much greater during the fourteenth century—the limited extent of the population at that time being taken into consideration. Between July 1348, and September 1349, upwards of 50,000 persons are stated to have been cut off by the disease in the metropolis.§ During the same season, 7,000 died at Yarmouth, above 57,000 at Norwich, and a considerable number in various other parts of England, Wales, and Scotland. This century, like the seventeenth, was one of great desolation throughout the world; for according to an official report to Pope Clement, 23,840,000 persons are stated to have died within the pale of the See in one year, (1347.) In England it entirely disappeared before the end of August, 1349, and the mortality in other parts, subsequent to 1350, "was probably occasioned as much, or more, by the privation and destitution of all social comfort, in which such a calamity was calculated to leave large numbers of survivors, as from any marked or specific pestilential disease."

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* Mr. Graunt gives these as the numbers for 1592, and states that the mortality in 1593, was 17,846, and the deaths from the plague 10,662. Mr. Marshall makes no mention of the plague of 1592.

† Another account makes the number 37,294, and from plague, 30,561. Mr. Marshall places no reliance on either statements; but Mr. Graunt adopts the latter without, however, assigning his reasons.

‡ The seventeenth century appears to have been a period of pestilential desolation all over the world. From 1618 to 1655, several places on the continent of Europe were ravaged by the disease; in 1656, Naples lost 300,000 of its inhabitants; in 1657, Geneva 70,000; in 1632, Amsterdam 24,148. See Marshall, p. 66, for further details on the subject.

§ As regards the mortality from this disease in London, considerable difficulty is experienced in arriving at the truth. Some historians state the number of deaths to have been 57,354. But Mr. Marshall thinks that this number must be regarded as indicating the mortality of Norwich, and not of London. According to Rapin, above 50,000 persons are stated to have been buried in a churchyard belonging to the Cistercians; but Mr. Johnes, the annotator of Sir John Froissart's Chronicles, states that the number buried there, amounted to 200 daily; and Holinshed, who was probably Mr. Johnes' authority, states that besides great number of bodies buried in other places, there were interred from *Candlemasse till Easter,* in the said churchyard, 200 dead corpses daily. "Now, in no year could Candlemasse till Easter embrace a period of more than eighty

In addition to the plague of 1348–9, Holinshed states that in 1479, "there was great mortality and death by pestilence, not onlie in London, but in diverse parts of the realme, which began in the latter end of September, in the yeare last before passed, and continued all the yeare till the beginning of November, which was about fourteen months; in which space died innumerable of people in the said citie and elsewhere." And again in 14, 15, Hen. VII. 1499, "the next yeare after, there was a great plague whereof men died in many places verie sore; but ecpecialle, and most of all, in the citie of London, where died in that year thirtie thousand."

Finally, the years 1545 and 1563, appear to have been great plague years, for we are informed in a tract entitled *Flagellum Dei*, consisting of a collection of the several fires, plagues, pestilential diseases, &c. that happened in London, especially since the Norman conquest, that in the first of the above-mentioned years, there died in London a very considerable number of individuals, and in the latter 21,500.

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days, 200 daily during such period gives only a total of 16,000, instead of above 50,000, as stated by Rapin. Mr. Rickman, the author of the Population Returns, computes the mortality from the plague in London in 1348, at 100,000, but he is not borne out in this opinion by any of the authorities that he himself quotes.